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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/536,623 | 01/19/2006 | Shih-Ping Wang | 2901/69325-PCT-US | 9285 |
| 7590 Cooper & Dunham 1185 Avenue of the Americas New York, NY 10036 | | 07/31/2007 | EXAMINER WEATHERBY, ELLSWORTH | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/536,623

Applicant(s)

WANG, SHIH-PING

Examiner

Ellsworth Weatherby

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/19/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities: Applicant claims, "wherein the scans are obtained a substantially reduced radiation level". It is suggested that this be rewritten as, "wherein the scans are obtained *at a* substantially reduced radiation level", Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 11 and 16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 7,103,205.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim simultaneously displaying a thick slice images with a standard x-ray view where the thick slice is corresponds to a slab like sub-volume substantially parallel to the x-ray mammogram view plane.

4. Claims 1-3, 11 and 16-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 6 of copending Application No. 10/160,836. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach a method for facilitating the detection of breast lesions, comprising: displaying an x-ray mammogram view of a breast captured in an x-ray mammogram view plane and displaying with the x-ray mammogram view a plurality of two-dimensional thick-slice images of the breast, each thick-slice image representing properties of a corresponding thick-slice volume of the breast substantially parallel to the x-ray mammogram view plane.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 6, 12 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims a slice thickness roughly equal to about twice and expected size of a lesion to be detected. However, applicant does not limit the expected size of a lesion. Therefore, the metes and bounds of this claim are indefinite. Further, it is not clear if the applicant is claiming 1-3 cm thick or a 1-3 cm volume. For the purposes of examination the Examiner is interpreting the limitations of this claim to read claims a sub volume thickness roughly equal to about 1-6cm.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 11 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Getzinger et al. (USPN 5,640,956).

Regarding claims 1-3, Getzinger et al. '956 teaches a method for processing scans of an anatomical volume derived from a three-dimensional medical imaging modality, comprising: computing from said scans a plurality of two-dimensional thick-slice images, each thick-slice image corresponding to a slab-like subvolume of the anatomical volume substantially parallel to a standard x-ray view plane for that anatomical volume (col. 4, ll. 52-62; Note: it is widely recognized in the art that specific slice thickness are determined by the user set up and operation of the mammographic studies. Therefore, absent any criticality, the specific slice thickness disclosed do not provide any patentable weight.); and displaying said thick-slice images to a viewer (col. 5, ll. 14-32). Getzinger et al. '956 also teaches that the viewer is a clinician screening for suspicious regions within the anatomical volume (col. 7, ll. 24-28; Here, the examiner is interpreting suspicious regions to include lesions). Getzinger et al. '956 also teaches that the slab-like subvolumes collectively occupy substantially all of the anatomical volume (col. 2, ll. 56-65).

Claims 11 and 16-17 do not contain any feature which, in combination with the features of any claim they refer meet the requirements of novelty and/or inventive step over claims 1-3. Therefore, the same reasoning from claims 1-3 applies *mutatis mutandis* to the subject matter of the corresponding claims 11 and 16-17.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Getzinger et al. '956.

Getzinger et al. '956 teaches all the limitations of the claimed invention except for expressly teaching that *all* of the slab-like subvolumes are simultaneously displayed to the viewer. However, Getzinger et al. '956 does teach multiple windows for displaying multiple ultrasonic slices (col. 7, ll. 29-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Getzinger et al. '956 to display all of the slab-like subvolumes to that ultrasonic images corresponding to any point on the x-ray imagery may be provided, as taught by Getzinger et al. '956 (col. 7, ll. 39-49).

11. Claims 5-9, 12-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Getzinger et al. '956 in view of Shapiro et al. (USPN 6,246,782).

Regarding claim 5-9, Getzinger et al. '956 teaches all the limitations of the claimed invention except for expressly teaching displaying computer-aided detection (CAD) annotations to said viewer in conjunction with said thick-slice images. Getzinger

et al. '956 also does not expressly teach that the slab-like subvolumes have an average thickness roughly equal to about twice an expected size of lesions to be detected according to the three-dimensional imaging modality. Getzinger et al. '956 also does not expressly teach that anatomical volume including a chest or abdomen volume, said average thickness being in the range of 1-3 cm, and said standard x-ray view plane being an anterior-posterior (PA) view or a lateral view. Getzinger et al. '956 also does not expressly teach that the anatomical volume includes a head or neck volume.

In the same field of endeavor, Shapiro et al. '782 teaches displaying computer-aided detection (CAD) annotations to said viewer in conjunction images (abstract; col. 7, ll. 28-50). Shapiro et al. '782 also teaches slab-like subvolumes that have an average thickness being in the range of 1-3 cm (col. 4, ll. 45-56). Shapiro et al. '782 also teaches the use of a standard x-ray view plane being an anterior-posterior (PA) view or a lateral view (fig. 7). Shapiro et al. '782 does not expressly teach that the anatomical volume includes a head or neck volume, however it would have been obvious to one of ordinary skill in the art at the time of the invention to image the head or neck for suspicious regions of interest using the same imaging modality.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Getzinger et al. '956 in view of Shapiro et al. '782. The motivation to modify Getzinger et al. '956 in view of Shapiro would have been to automatically identify anatomical distance information about of the ROI by standard views, as taught by Shapiro et al. '782 (col. 6, ll. 26-52).

Claims 12-15 and 18-20 do not contain any feature which, in combination with the features of any claim they refer meet the requirements of novelty and/or inventive step over claims 6-9. Therefore, the same reasoning from claims 6-9 applies *mutatis mutandis* to the subject matter of the corresponding claims 12-15 and 18-20.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arenson et al. (PGPub No. 2004/0017890) in view of Shapiro et al. '782.

Arenson et al. '890 teaches a method for processing scans of an anatomical volume derived from a three-dimensional medical imaging modality, comprising: computing from said scans a plurality of two-dimensional thick-slice images, each thick-slice image corresponding to a slab-like subvolume of the anatomical volume substantially parallel to a standard x-ray view plane for that anatomical volume [0033-0034]; Here, the examiner is interpreting the limitations of the claim to be met because it is inherent that the CT would step and shoot in small increments such that the iterative slices would be substantially parallel. Note: it is widely recognized in the art that specific slice thickness are determined by the user set up and operation of the mammographic studies. Therefore, absent any criticality, the specific slice thickness disclosed do not provide any patentable weight.]; and displaying said thick-slice images to a viewer [0011]. Arenson et al. '890 also teaches as prior art screening for lesions within an anatomical volume [0005]; and wherein said three-dimensional medical imaging modality is CT, wherein the scans are obtained a substantially reduced radiation level as compared to a conventional CT imaging radiation level [0009].

Arenson et al. '890 does not expressly teach imaging slab-like subvolumes that have an average thickness in the range of 1-6 cm and wherein the computing preserves structures approximately 0.5 cm or greater in size in said thick-slice images.

In the same field of endeavor, Shapiro et al. '782 teaches that the slab-like subvolumes have an average thickness being in the range of 1-3 cm (col. 4, ll. 45-56) and wherein said computing preserves structures approximately 0.5 cm or greater in size in said thick-slice images (col. 4, ll. 45-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Arenson et al. '890 in view of Shapiro et al. '782. The motivation to modify Arenson et al. '890 in view of Shapiro et al. '782 would have been focus diagnostic review to ROIs including suspicious masses.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellsworth Weatherby whose telephone number is (571) 272-2248. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571) 272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3768

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EW


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